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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,201	01/27/2006	Artur Pfitzner	MBP-033XX	8282
207	7590	10/10/2007	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP			BAGGOT, BRENDAN O	
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BOSTON, MA 02109			1638	
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			10/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,201	Applicant(s) PFITZNER ET AL.	
	Examiner Brendan O. Baggot	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-33 is/are pending in the application.
- 4a) Of the above claim(s) 15, 16, 18, 19 and 29-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 20-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/27/06; 3/26/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Office Action of 21 July 2007 directed to the examination of non-elected SEQ ID NO: 1 is hereby VACATED.

Restriction / Election

1. Applicant's election with traverse of Applicant elects Group I, claims 1-14, 20-28, and SEQ ID NO: 2 only, in the reply filed on 3/16/07 is acknowledged. The traversal is on the ground(s) that "...not seen as ...undue burden". This is not found persuasive because while a search of the prior art for one group may overlap with that of another group, they are not co-extensive of each other and thus would represent undue burden on Office resources.

2. Claims 15-16, 18-19, 29-33 and sequences other than SEQ ID NO: 2 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 3/16/07.

3. Claims 1-14, 20-28 are examined in the instant application.

4. The requirement is deemed proper and is therefore made FINAL.

Claim Objections

5. Claim 1 is objected to because of the following informalities: the claim recites non-elected SEQ ID NOs. Appropriate correction is required.

6. Claims 9, 21 are objected to because of the following informalities: the claim recites the "... host organism ... is ... a plant cell." Plant cells are not organisms. Appropriate correction is required.

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7. Claim 1 is objected to because of the following informalities: the claim recites an improper Markush group drawn to 2 members of a genus and a separate genus. Appropriate correction is required.

Claim Rejections - 35 U.S.C. §112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-14 and 20-28 rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

9. In Claims 1-14 and 20-28, it is unclear what is being retained in the derived product.

Claim Rejections - 35 USC § 112, 1st, paragraph, written description

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected; to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-14 and 20-28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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The claims are broadly drawn to an inducible promoter, SEQ ID NO: 2 (NIMIN-1 promoter), biologically active derivatives of SEQ ID NO: 2 of any length and sequence from any source, “chemicals” and “organic compounds” capable of inducing SEQ ID NO: 2, and undescribed heterologous nucleic acid sequences encoding wild-type or mutant NIMIN-1 promoters. Said sequences include genes encoding promoters from any source (Claim 1-14, 20-28), as well as any sequence from any source encoding any promoter which has any biological activity of any kind, including irreversible self-excision from the genome.

In contrast, Applicant has only described SEQ ID NO: 2 (sequence listing), GUS expression data with NIMIN-2 (SEQ ID NO: 2)-GUS fusions (Examples 2-3), and transgenic tobacco plants containing SEQ ID NO: 2-GUS constructs (Examples 2-3).

Applicant does not describe biologically active derivatives of SEQ ID NO: 2 of any length and sequence from any source, any “chemicals” (e.g., mercury or water) or any “organic compounds” (e.g., cyanide or glyphosate) capable of inducing SEQ ID NO: 2, and undescribed heterologous nucleic acid sequences encoding wild-type or mutant SEQ ID NO: 2 promoters. Said sequences include genes encoding promoters from any source (Claim 1-14, 20-28), as well as any sequence from any source encoding any promoter with any or no promoter activity.

Applicant has not described the structure or any other relevant characteristics for all nucleic acid sequences encoding biologically active derivatives of NIMIN-2 promoters, or a representative number of same and a literature review does not indicate that they are well known to one of skilled in the art. Applicant has only described nucleic acid sequences encoding SEQ ID NO: 2 from *Arabidopsis*.

Applicant fails to describe a representative number of biologically active derivatives of SEQ ID NO: 2, or chemicals or organic compounds capable of inducing said biologically active derivatives. Applicant only describes SEQ ID NO: 2. Furthermore, Applicant fails to describe structural features common to members of the claimed genus of biologically active derivatives of SEQ ID NO: 2. Hence, Applicant fails to meet either prong of the two-prong test set forth by *Eli Lilly*. Furthermore, given the lack of description of the necessary elements essential for NIMIN-2 promoter activity, it remains unclear what features identify NIMIN-2 promoters. Since the genus of NIMIN-2 promoters or the genus of biologically active fragments thereof has not been described by either specific structural features or a representative number of species, the specification fails to provide an adequate written description to support the breadth of the claims.

The Federal Circuit has clarified the application of the written description requirement. The court stated that a written description of an invention “requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials.” *University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1568. The court also concluded that “naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material.” *Eli Lilly*. Further, the court held that to adequately describe a claimed genus, Patent Owner must describe a representative number of the species of the claimed genus, and that one of skill in the art should be able to “visualize or recognize the identity of the members of the genus.” *Id.*

Finally, the court held:

A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or a recitation of structural features common

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to members of the genus, which features constitute a substantial portion of the genus. *Id.*

See also MPEP Section 2163, page 174 of Chapter 2100 of the August 2005 version, column 1, bottom paragraph, where it is taught that

[T]he claimed invention as a whole may not be adequately described where an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. A biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.

See also Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ 2d 1016 at 1021, (Fed. Cir. 1991) where it is taught that a gene is not reduced to practice until the inventor can define it by "its physical or chemical properties" (e.g. a DNA sequence).

Given the claim breadth and lack of guidance as discussed above, the specification fails to provide an adequate written description of the genus of sequences as broadly claimed. Given the lack of written description of the claimed genus of sequences, any method of using them, such as transforming plant cells and plants therewith, and the resultant products including the claimed transformed plant cells and plants containing the genus of sequences, would also be inadequately described. Accordingly, one skilled in the art would not have recognized Applicant to have been in possession of the claimed invention at the time of filing. *See* The Written Description Requirement guidelines published in Federal Register/ Vol. 66, No. 4/ Friday January 5, 2001/ Notices: pp. 1099-1111.

Claim Rejections - 35 U.S.C. §112, first paragraph, enablement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 1-14 and 20-28 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for SEQ ID NO: 2, does not reasonably provide enablement for biologically active derivatives of SEQ ID NO: 2. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The *Wands* court set forth the enablement balancing test:

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 858 F.2d 731, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988). *Wands* states at page 1404, "Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in *Ex parte Forman*. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the 'claims.'"

M.P.E.P. § 2164.01(a).

The claims are broadly drawn to an inducible promoter, SEQ ID NO: 2 (NIMIN-2 promoter), biologically active derivatives of SEQ ID NO: 2 of any length and sequence from any source, "chemicals" and "organic compounds" capable of inducing SEQ ID NO: 2, and undescribed heterologous nucleic acid sequences encoding wild-type or mutant NIMIN-2 promoters. Said sequences include genes encoding promoters from any source (Claim 1-14, 20-

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28), as well as any sequence from any source encoding any promoter which has any biological activity of any kind, including irreversible self-excision from the genome.

In contrast, Applicant has only teaches SEQ ID NO: 2(sequence listing), GUS expression data with NIMIN-29 (SEQ ID NO: 2)-GUS fusions (Examples 2-3), and transgenic plants containing SEQ ID NO: 2-GUS constructs(Examples 2-3).

Applicant do not teach biologically active derivatives of SEQ ID NO: 2 of any length and sequence from any source, “chemicals” (e.g., mercury or water) or “organic compounds” (e.g., cyanide or glyphosate) capable of inducing SEQ ID NO: 2, and undescribed heterologous nucleic acid sequences encoding wild-type or mutant SEQ ID NO: 2 promoters. Said sequences include genes encoding promoters from any source (Claim 1-14, 20-28), as well as any sequence from any source encoding any promoter which somehow “modulates” expression or activity of a gene of interest.

The state-of-the-art is such that one of skill in the art cannot predict which “biologically active derivatives of SEQ ID NO: 2” will work *a priori*. Reviews by Kim, Hannenhalli, Maiti, and Doelling detail a variety of problems seen in promoter identification and modification.

The state of the prior art, as exemplified by Kim et al (Plant Molecular Biology, vol. 24, pp. 105-117, 1994)) teaches the extreme sensitivity of promoter regions to single base pair changes, the absolute requirement for as few as 3 to 6 nucleotides for promoter function, and the failure of a promoter to function either constitutively or specifically when lacking oligonucleotide regions approximately 100 bp upstream of the transcription start site (page 106, paragraph bridging the columns; paragraph bridging pages 107 and 108; page 110, paragraph bridging the columns). In addition, the claimed nucleic acid sequence that is a biologically active

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derivatives of SEQ ID NO: 2 would comprise non- functional transcriptional and translational elements, i.e. modifications of CAAT, TATA and the ATG codon, required for proper initiation of these cellular activities, known in the prior art; as well as highly conserved promoter regions rendered inactive by modifications. In addition, Applicant has not shown that any biologically active derivative of SEQ ID NO: 2 can also have the desired promoter activity.

A recent review by Hannenhalli (2001) *Bioinformatics* 17: S90-S96) teaches that prediction of eukaryotic promoters has been one of the most elusive problems despite considerable effort devoted to the study. (See the abstract at least). In the instant case of a promoter, Hannenhalli's review teaches a 50% failure in the sensitivity of promoter detection (p. S90, last full sentence).

Twenty base-pair long regions of a DNA fragment that has promoter activity cannot predictably be assumed to also have promoter activity. Deletion analysis of various promoters have shown that even DNA segments from the portion of a promoter region containing sequence elements thought to be most important (e.g., the TATA-box) need to be longer than 20 basepairs. Maiti et al, in studies on a figwort mosaic virus promoter, found that the smallest portion upstream of the transcriptional start site that would support transcription was 198 basepairs long; segments of 73 and 37 basepairs did not work (1997, *Transgen. Res.*, 6:143-156, see Fig. 4). Doelling et al found that the minimal rRNA promoter of *Arabidopsis thaliana* is at least 33 nucleotides long (1995, *Plant J.* 8:683-692, see Fig. 1).

The specification, while suggesting the use of the SEQ ID NO: 2, did not provide significant guidance on how to overcome art recognized problems in achieving expression of

promoter smaller "biologically active derivatives of SEQ ID NO: 2" of DNA, including single base pair polynucleotide promoters while still retaining activity.

In addition, since the working examples disclosed in the specification are limited to unmodified SEQ ID NO: 2, the chemically inducible activity of sequences cannot be extrapolated to any derivatives thereof, absent specific guidance. While Applicant is not required to exemplify each and every claimed embodiment, specific guidance as to which region of the disclosed sequences can be modified, truncated so that the s chemically inducible activity promoter activity is retained is required.

The specification has no working examples of sequences other than SEQ ID NO: 2 and no working examples of any "biologically active derivatives of SEQ ID NO: 2".

Without sufficient guidance, identification of NIMIN-2 promoters is unpredictable and without guidance on how to overcome the problems seen in determining *a priori* which sequences will have NIMIN-2 promoter activity transgenic plants, it is unpredictable and the experimentation left to those skilled in the art is unnecessarily and improperly extensive and undue.

Therefore, given the breadth of the claims; the lack of guidance and working examples; the unpredictability in the art; and the state-of-the-art as discussed above, undue trial and error experimentation would be required to practice the claimed invention, and therefore the invention is not enabled throughout the broad scope of the claims.

Claim Rejections - 35 U.S.C. §102

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

35 U.S.C. §102.

12. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sato, S., (2000) Structural analysis of *Arabidopsis thaliana* chromosome 3. I. Sequence features of the regions of 4,504,864 bp covered by sixty P1 and TAC clones. J. DNA Res. 7 (2), 131-135. (See Appendix A). Sato discloses a recombinant nucleic acid containing at least a first nucleotide sequence operably linked to at least a second nucleotide sequence containing a transgene to be expressed, wherein the first nucleotide sequence contains a regulatory sequence selected from the group consisting of SEQ-ID-No. 2, and a biologically active derivative thereof, wherein the regulatory sequence is a promoter sequence selectively inducible by chemicals, wherein the chemicals are selected from the group consisting of organic compounds, wherein the organic compounds are selected from the group consisting of phenolic compounds, thiamine, benzoic acid, isonicotinic acid (INA), and derivatives thereof, wherein the phenolic compound is salicylic acid or a structural or functional derivative thereof, wherein the expression/transcription of said nucleotide sequence results in a detectable signal, a vector containing the recombinant nucleic acid according, and a bacterial host cell. (*Id.* @ p. 131, left column, 1st paragraph). Because

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Sato discloses cloning host cells with cloning vectors, Sato discloses the limitations of the claimed invention. Thus, the reference discloses all the limitations of the Claimed invention.

13. Claim 1-14, 20-28 rejected under 35 U.S.C. 102(e) as being anticipated by Cade et al (PGPPUB US-2004/0154051, published 5 August 2004, filed 12 March 2004, See Appendix B).

Cade discloses a recombinant nucleic acid containing a first nucleotide sequence operably linked to a second nucleotide sequence containing a transgene to be expressed, wherein the first nucleotide sequence contains a biologically active derivative of SEQ-ID-No. 2, wherein the regulatory sequence is a promoter sequence selectively inducible by salicylic acid, wherein the recombinant nucleic acid further contains a GUS reporter system which comprises at least one nucleotide sequence, wherein the expression/transcription of said nucleotide sequence results in a detectable signal, a bacterial or plant cell host organism containing a vector containing the recombinant nucleic acid, transgenic plant wherein said recombinant nucleic acid is stably integrated, wherein the transgene contained in the second nucleotide sequence is transiently expressed, and wherein the expression of the transgene contained in the second nucleotide sequence is selectively induced upon treatment salicylic acid. (See examples 18, 19 and Claim 11).

Cade also discloses a bacterial or plant cell host organism containing said vector containing said polynucleotides encoding said biologically active fragment and said reporter system, wherein the transgene contained in the second nucleotide sequence is transiently expressed and selectively induced upon treatment with salicylic acid, said recombinant nucleic acid further containing a reporter system which comprises at least one nucleotide sequence, and wherein the

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expression/transcription of said nucleotide sequence results in a detectable signal. (See examples 18, 19 and Claim 11).

Thus, the reference discloses all the limitations of the Claimed invention.

14. No Claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brendan O. Baggot whose telephone number is 571/272-5265. The examiner can normally be reached on Tuesday through Thursday, 10:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571/272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAVID H. KRUSE, PH.D.
PRIMARY EXAMINER

bob

A handwritten signature in black ink, appearing to read "David H. Kruse", written in a cursive style.

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APPENDIX A

SCORE Search Results Details for Application 10566201 and Search Result us-10-566-201-2.rge.

Score Home Page Retrieve Application List SCORE System Overview SCORE FAQ Comments / Suggestions

This page gives you Search Results detail for the Application 10566201 and Search Result us-10-566-201-2.rge.

Go Back to previous page

GenCore version 5.1.9
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OM nucleic - nucleic search, using sw model

Run on: September 28, 2006, 01:51:24 ; Search time 11528 Seconds
(without alignments)
6800.793 Million cell updates/sec

Title: US-10-566-201-2
Perfect score: 1226
Sequence: 1 gatctctatgtatataaaaa.....ttgactaagcttaaacgacg 1226

Scoring table: 1IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 6366136 seqs, 31973710525 residues

Total number of hits satisfying chosen parameters: 12732272

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : GenEmbl:*
1: gb_env:*
2: gb_pat:*
3: gb_ph:*
4: gb_pl:*
5: gb_pr:*
6: gb_ro:*
7: gb_sts:*
8: gb_sy:*
9: gb_un:*
10: gb_vi:*
11: gb_ov:*
12: gb_htg:*

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13: gb_in:*

14: gb_om:*

15: gb_ba:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result			%				DB	ID	Description
	No.	Score	Match	Length					
	1	1226	100.0	1226	2	CS007929		CS007929	Sequence
	2	1226	100.0	1226	2	CS025770		CS025770	Sequence
c	3	1226	100.0	83650	4	AB023041		AB023041	Arabidops
	4	941	76.8	92620	4	AB026636		AB026636	Arabidops
	5	837	68.3	1700	2	AR488147		AR488147	Sequence
c	6	797.8	65.1	83646	4	AB005248		AB005248	Arabidops
	7	797.6	65.1	94487	4	AC012394		AC012394	Arabidops
c	8	797.6	65.1	100806	4	AC015450		AC015450	Arabidops
c	9	739.2	60.3	104386	4	ATT32A17		AL161813	Arabidops
c	10	739.2	60.3	179771	4	ATCHRIV25		AL161513	Arabidops
	11	691	56.4	95519	4	AF071527		AF071527	Arabidops
c	12	691	56.4	116448	4	AC005142		AC005142	Arabidops
c	13	691	56.4	159629	4	ATCHRIV9		AL161497	Arabidops
c	14	553.2	45.1	95190	4	AC007203		AC007203	Arabidops
	15	231.8	18.9	105223	4	AC007399		AC007399	Arabidops
c	16	114.6	9.3	349980	2	AX344555		AX344555	Sequence
	17	112	9.1	175544	12	AC117342		AC117342	Rattus no
	18	111.2	9.1	4660	2	CS083843		CS083843	Sequence
	19	111.2	9.1	90550	5	AL592166		AL592166	Human DNA
c	20	108.8	8.9	109786	4	F5K24		AF128395	Arabidops
c	21	108.8	8.9	183181	4	ATCHRIV19		AL161507	Arabidops
	22	107.6	8.8	1524	2	CS083838		CS083838	Sequence
	23	107.6	8.8	212999	12	AC151201		AC151201	Bos tauru
c	24	107.4	8.8	170627	12	AC125567		AC125567	Rattus no
c	25	106.4	8.7	15548	2	AX347057		AX347057	Sequence
	26	105.8	8.6	47403	2	AX059535		AX059535	Sequence
	27	105.8	8.6	91470	4	T4B21		AF118223	Arabidops
	28	105.8	8.6	110000	2	AR777056_04		Continuation (5 of	
	29	105.8	8.6	200001	4	ATCHRIV13		AL161501	Arabidops
	30	105.6	8.6	154563	5	CR936360		CR936360	Human DNA
c	31	104.4	8.5	2131	2	CS083950		CS083950	Sequence
c	32	104.4	8.5	172816	5	AC093899		AC093899	Homo sapi
	33	104.2	8.5	241619	12	AC167751		AC167751	Bos tauru
c	34	103.8	8.5	166501	12	CR548626		CR548626	Danio rer
c	35	103.2	8.4	7218	2	I66494		I66494	Sequence 14
c	36	101.6	8.3	143331	5	AC091214		AC091214	Homo sapi
c	37	100.8	8.2	169510	12	CR855864		CR855864	Danio rer
c	38	100.8	8.2	178273	12	AC005308		AC005308	Plasmodiu
	39	100.8	8.2	250531	13	AE014845		AE014845	Plasmodiu
	40	100.6	8.2	155942	12	AC136691		AC136691	Homo sapi
	41	100.6	8.2	161765	5	AC113190		AC113190	Homo sapi
	42	100.6	8.2	176479	12	AC135631		AC135631	Homo sapi
c	43	100.2	8.2	192265	5	CNS018P3		AL110118	Human chr
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45 99.8 8.1 67970 13 PFMAL1P3

AL031746 Plasmodiu

ALIGNMENTS

RESULT 3

AB023041/c

LOCUS AB023041 83650 bp DNA linear PLN 14-FEB-2004

DEFINITION Arabidopsis thaliana genomic DNA, chromosome 3, P1 clone: MPE11.

ACCESSION AB023041 BA000014

VERSION AB023041.1 GI:4220640

KEYWORDS

SOURCE Arabidopsis thaliana (thale cress)

ORGANISM Arabidopsis thaliana

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;
rosids; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

REFERENCE 1

AUTHORS Sato, S., Nakamura, Y., Kaneko, T., Katoh, T., Asamizu, E. and Tabata, S.

TITLE Structural analysis of Arabidopsis thaliana chromosome 3. I.
Sequence features of the regions of 4,504,864 bp covered by sixty
P1 and TAC clones

JOURNAL DNA Res. 7 (2), 131-135 (2000)

PUBMED 10819329

REFERENCE 2 (bases 1 to 83650)

AUTHORS Sato, S., Nakamura, Y., Kaneko, T., Kato, T., Asamizu, E. and Tabata, S.

TITLE Direct Submission

JOURNAL Submitted (01-FEB-1999) Yasukazu Nakamura, Kazusa DNA Research
Institute, Department of Plant Gene Research; 1532-3, Yana,
Kisarazu, Chiba 292-0812, Japan (E-mail: ynakamu@kazusa.or.jp,
Tel: 81-438-52-3935, Fax: 81-438-52-3934)

COMMENT

Address for correspondence: kaos@kazusa.or.jp

For the latest information on annotation of this clone, please see
http://www.kazusa.or.jp/kaos/cgi-bin/agd_graph.cgi?c=MPE11

Genes with similarity to proteins in the databases are described in
'product' or 'note' qualifiers. Genes that have no significant
protein similarity are described as 'unknown protein'.

The software programs used to predict genes include: Grail
(Informatics Group, Oak Ridge National Laboratory,

<http://compbio.ornl.gov/Grail-1.3/>),

GENSCAN (Chris Burge, MIT, <http://CCR-081.mit.edu/GENSCAN.html>),

NetGene2 (S.M. Hebsgaard, et al., CBS, Technical University of
Denmark, <http://www.cbs.dtu.dk/services/NetGene2/>) and

SplicePredictor (Volker Brendel, Stanford University,

<http://gremlin1.zool.iastate.edu/cgi-bin/sp.cgi>).

Genes encoding tRNAs are predicted by tRNAscan-SE

(Sean Eddy, Washington University School of Medicine, St. Louis,
<http://genome.wustl.edu/eddy/tRNAscan-SE/>).

This sequence may not be the entire insert of this clone. It may be
shorter because we remove overlaps between neighboring submissions.

The 5' clone is K9I22 and the 3' clone is MJL14.

FEATURES

source

Location/Qualifiers

1. 83650

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/mol_type="genomic DNA"

/db_xref="taxon:3702"

/chromosome="3"

Art Unit: 1638

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Query Match 100.0%; Score 1226; DB 4; Length 83650;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1226; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy 61 TTGAGAGAATGACATTGTGTGAGAAAAGTTAGGTAAATAACATTTTCTGAAAAAGAGAAA 120
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Qy 121 ATACAAAAATATCCTTGTGTTTACTTATTTTACAATAATGCCATTGGCTTTAGTTATAA 180
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Db 12949 ATACAAAAATATCCTTGTGTTTACTTATTTTACAATAATGCCATTGGCTTTAGTTATAA 12890
Qy 181 AGTTTATATGTATTTGTCTAAAAATAGCATGATATATTTACAAAAATCATGCAATTCCTTTA 240
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Qy 841 GGAAGAAGAAAGAGAAAGGCTAAAAATAGACTAACTATTGCCAAAATTTCTGTAGCCGACA 900
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```

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Qy    1201  TTTTCTTGACTAAGCTTAAACGACG 1226
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Db    11869 TTTTCTTGACTAAGCTTAAACGACG 11844

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APPENDIX B

SCORE Search Results Details for Application 10566201 and Search Result us-10-566-201-2.rnpbm.

[Score Home Page](#) [Retrieve Application List](#) [SCORE System Overview](#) [SCORE FAQ](#) [Comments / Suggestions](#)

This page gives you Search Results detail for the Application 10566201 and Search Result us-10-566-201-2.rnpsbm.

Go Back to previous page

GenCore version 5.1.9
Copyright (c) 1993 - 2006 Bioceleration Ltd.

OM nucleic - nucleic search, using sw model

```
Run on:      September 28, 2006, 02:25:12 ; Search time 1565 Seconds
              (without alignments)
              9625.969 Million cell updates/sec
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Title: US-10-566-201-2
Perfect score: 1226
Sequence: 1 gatctctatgtatataaaaa.....ttgactaagcttaaacgacg 1226

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 18892170 seqs, 6143817638 residues

Total number of hits satisfying chosen parameters: 37784340

Minimum DB seq length: 0

Maximum DB seq length: 20000000000

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Post-processing: Minimum Match 0%
                  Maximum Match 100%
                  Listing first 45 summaries
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```
Database :      Published_Applications_NA_Main:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result	%					Description
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	2	837	68.3	862	8	US-10-800-161-25
	3	837	68.3	1700	8	US-10-800-161-3
	4	837	68.3	1700	9	US-10-760-752-3
	5	530	43.2	544	8	US-10-800-161-27
	6	260	21.2	274	8	US-10-800-161-26
	7	258.4	21.1	274	8	US-10-800-161-28
c	8	114.6	9.3	3673778	7	US-10-312-841-1
c	9	106.4	8.7	15548	7	US-10-311-455-2128
	10	105.8	8.6	1082144	15	US-11-117-187-211
	11	93.6	7.6	8056	9	US-10-473-126-386
	12	92.4	7.5	158001	8	US-10-211-179-11
c	13	91.6	7.5	7442	8	US-10-221-714A-409
c	14	90.6	7.4	12237	7	US-10-311-455-2331
	15	88.4	7.2	1300	8	US-10-668-749A-1
c	16	86.8	7.1	6292	8	US-10-221-714A-461
c	17	86.4	7.0	173602	15	US-11-121-086-25
	18	86	7.0	537	8	US-10-021-323-8120
c	19	85.8	7.0	960	6	US-10-198-846-6381
c	20	85.8	7.0	6668	7	US-10-311-455-1670
	21	85.4	7.0	8056	9	US-10-473-126-240
c	22	85.4	7.0	8056	9	US-10-473-126-386
c	23	85	6.9	7498	7	US-10-311-455-230
c	24	84.2	6.9	6106	7	US-10-311-455-1445
c	25	84.2	6.9	6106	8	US-10-257-166-113
c	26	84.2	6.9	6106	8	US-10-221-714A-151
c	27	82.8	6.8	7814	8	US-10-221-714A-252
c	28	82.6	6.7	5413	8	US-10-221-714A-418
c	29	82.6	6.7	115218	9	US-10-278-698-255
c	30	82.6	6.7	115218	9	US-10-278-698-769
c	31	81.4	6.6	778	9	US-10-363-345A-2179
	32	81.4	6.6	778	9	US-10-363-345A-2180
c	33	81.4	6.6	778	10	US-10-363-483A-2179
	34	81.4	6.6	778	10	US-10-363-483A-2180
	35	81	6.6	1214	8	US-10-424-599-102083
	36	81	6.6	6631	7	US-10-240-453-213
	37	81	6.6	38678	10	US-10-893-315-136
	38	81	6.6	38684	10	US-10-893-315-154
c	39	80.8	6.6	3673778	7	US-10-312-841-2
	40	80.6	6.6	337344	9	US-10-388-838-58
c	41	80	6.5	7597	7	US-10-311-455-986
	42	79.6	6.5	998	12	US-10-301-480-576884
	43	79.6	6.5	998	12	US-10-301-480-1190293

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Db 301 GAAAATAAAGAATGAGAGATAGAGAGATTTCTATGGAAAAAGAAAGAGAGAACATGTAGG 360

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Qy 710 AGAGGGAGAGAGAAATAGAAAAAGAAAATGACATGGTGAATCTGAAGAAGATGAATTGTG 769
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Db 421 AGAGGGAGAGAGAAATAGAAAAAGAAAATGACATGGTGAATCTGAAGAAGATGAATTGTG 480

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Db 481 TTAAAGATGAAGAGAGAAAGAGAACTCCATGGCTAAAGTCTCGTAAAGAAGATGAAAAAG 540

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|||||

Db 601 TGTAGCCGACAAATACTATTTGGTCCAAGGTTATTTTGTGTATTCTTTTGAAGTCAAAAG 660

Qy 950 TTATTTCTTACATATACTCTAAAAATATAGCCGATACCAATTTTCCACACATGGACTTC 1009
|||||

Db 661 TTATTTCTTACATATACTCTAAAAATATAGCCGATACCAATTTTCCACACATGGACTTC 720

Qy 1010 CTTTATTCCAAAAGTCAATAAAGTGTGACGTCATGATACTTACGCTTTAAAACATCGCAT 1069
|||||

Db 721 CTTTATTCCAAAAGTCAATAAAGTGTGACGTCATGATACTTACGCTTTAAAACATCGCAT 780

Qy 1070 GATGATGTCATTAGCATCAATCTCCACCGTCCAATTTATTTAGTTGTTGACAATATCGAC 1129
|||||

Db 781 GATGATGTCATTAGCATCAATCTCCACCGTCCAATTTATTTAGTTGTTGACAATATCGAC 840

Qy 1130 CGTCTAAGTTCCACACCGACGGCTATAAGAGTTTCATTATAAATTTTAGCAAAATAAAAT 1189
|||||

Db 841 CGTCTAAGTTCCACACCGACGGCTATAAGAGTTTCATTATAAATTTTAGCAAAATAAAAT 900

Qy 1190 CAGCAAATAATTTTTCTTGACTAAGCTTAAACGACG 1226
|||||

Db 901 CAGCAAATAATTTTTCTTGACTAAGCTTAAACGACG 937

Art Unit: 1638

44	79.6	6.5	2512	4	US-09-925-065A-27191	Sequence 27191, A
45	79.6	6.5	2512	4	US-09-925-065A-27192	Sequence 27192, A

ALIGNMENTS

RESULT 1

US-10-800-161-24

; Sequence 24, Application US/10800161

; Publication No. US20040154051A1

; GENERAL INFORMATION:

; APPLICANT: Cade, Rebecca M

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; TITLE OF INVENTION: INDUCIBLE PROMOTERS

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; CURRENT APPLICATION NUMBER: US/10/800,161

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; PRIOR FILING DATE: 2000-01-11

; NUMBER OF SEQ ID NOS: 31

; SOFTWARE: PatentIn Ver. 2.1

; SEQ ID NO 24

; LENGTH: 962

; TYPE: DNA

; ORGANISM: Arabidopsis thaliana

US-10-800-161-24

Query Match 76.4%; Score 937; DB 8; Length 962;

Best Local Similarity 100.0%; Pred. No. 1.6e-149;

Matches 937; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy	290	TGTGTTTCTCAGAAATAGCACGAAATATTTATAAAAAGCATGCAATTCTCTTATAGATCG	349
Db	1	TGTGTTTCTCAGAAATAGCACGAAATATTTATAAAAAGCATGCAATTCTCTTATAGATCG	60
Qy	350	CGAAGTTTAAAAAACATATAGAATTGTTACAATATTACATGGGTTTTTATTGGATAACA	409
Db	61	CGAAGTTTAAAAAACATATAGAATTGTTACAATATTACATGGGTTTTTATTGGATAACA	120
Qy	410	TGACAAATATTTATTTATTTTCATGAGTTTTTATTGGATAGCATGACAAATATTAATATAT	469
Db	121	TGACAAATATTTATTTATTTTCATGAGTTTTTATTGGATAGCATGACAAATATTAATATAT	180
Qy	470	CAGTGTTAATAACATGTTTTGTTCTTAAAATACATGCATTTTAAAATCAGACATTGTGTT	529
Db	181	CAGTGTTAATAACATGTTTTGTTCTTAAAATACATGCATTTTAAAATCAGACATTGTGTT	240
Qy	530	TAAATCAAATCTAATCTCTTATATCACAACGACATTGACGGAAAATTCAGGTAAAAAGA	589
Db	241	TAAATCAAATCTAATCTCTTATATCACAACGACATTGACGGAAAATTCAGGTAAAAAGA	300
Qy	590	GAAATAAAGAATGAGAGATAGAGAGATTTCTATGGAAAAGAAAGAGAGAACATGTAGG	649